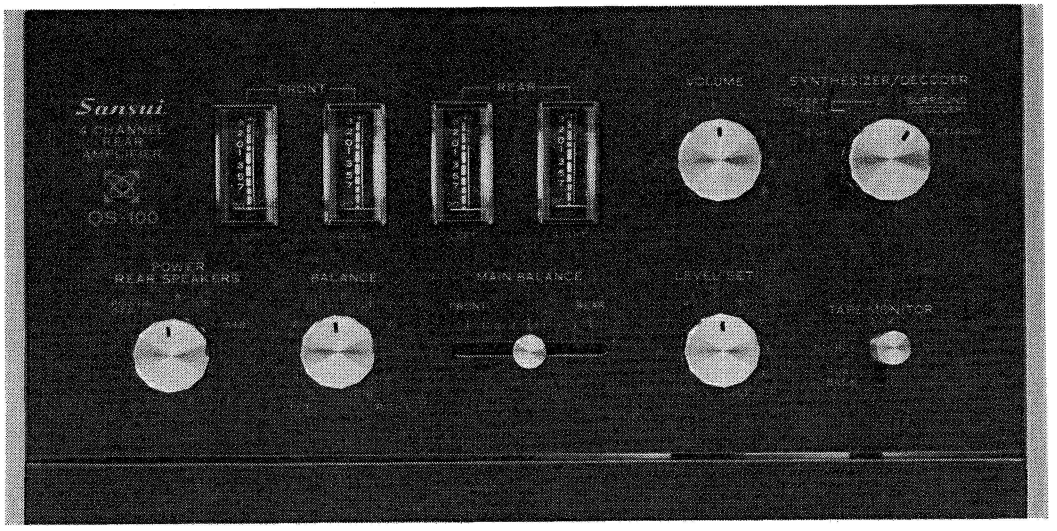
OPERATING INSTRUCTIONS & SERVICE MANUAL

SANSUI 4-CHANNEL REAR AMPLIFIER

QS-100



Sansui

SANSUI ELECTRIC COMPANY LIMITED

Congratulations on joining the thousands of proud, satisfied owners of quality stereo components from Sansui.

The QS-100 is a marvelous combination of Sansui's unique QS matrix and phase modulator circuit (patents pending) that produces a multi-dimensional sound field so enthusiastically received by many audio experts as purely 'revolutionary', and a quality 50 watt power amplifier for the rear channels. An instrument that literally heralds the new age of 4-channel stereo sound reproduction, the QS-100 not only converts your present collection of 2-channel stereo records and tapes, as well as FM multiplex stereo broadcasts, to immensely richer 4-channel stereo sound, but, working in the capacity of a decoder, restores any 2-channel material encoded from four channels by the Sansui 4-Channel Encoder (recording matrix) to its original full-fledged 4-channel status.

Simply add the QS-100 to your present 2-channel stereo along with a second pair of speaker systems, and you'll instantly have a 4-channel stereo system that gives you far greater pleasure both in sound effect and such technicalities as the choice of speaker positions.

Before you rush to audition how your new possession actually fills your room with the vibrant atmosphere of live performances, may we suggest that you read through this booklet once and acquire basic knowledge about its operation. Then you'll be better prepared to enjoy exciting 4-channel stereo at its best for years to come.

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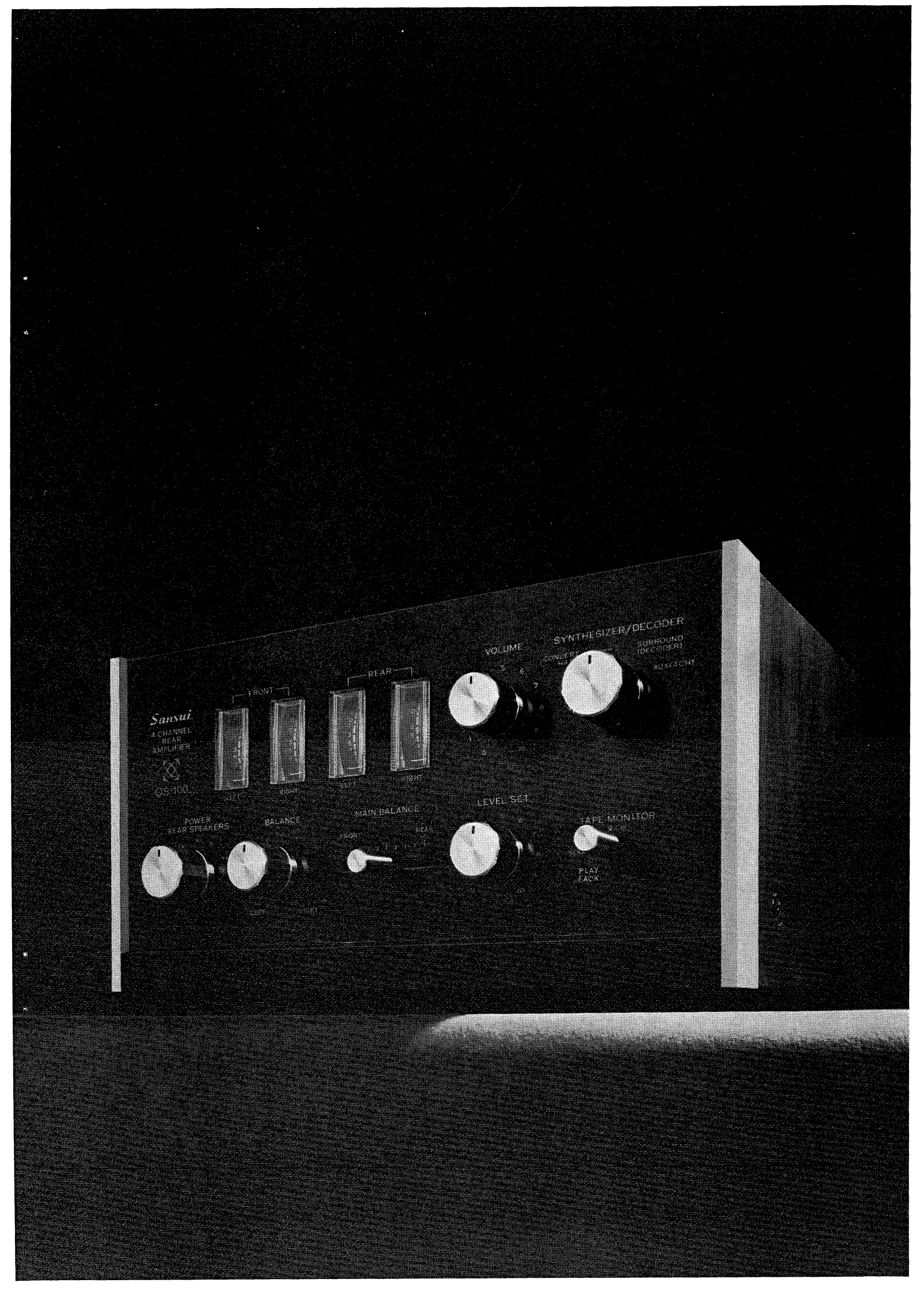
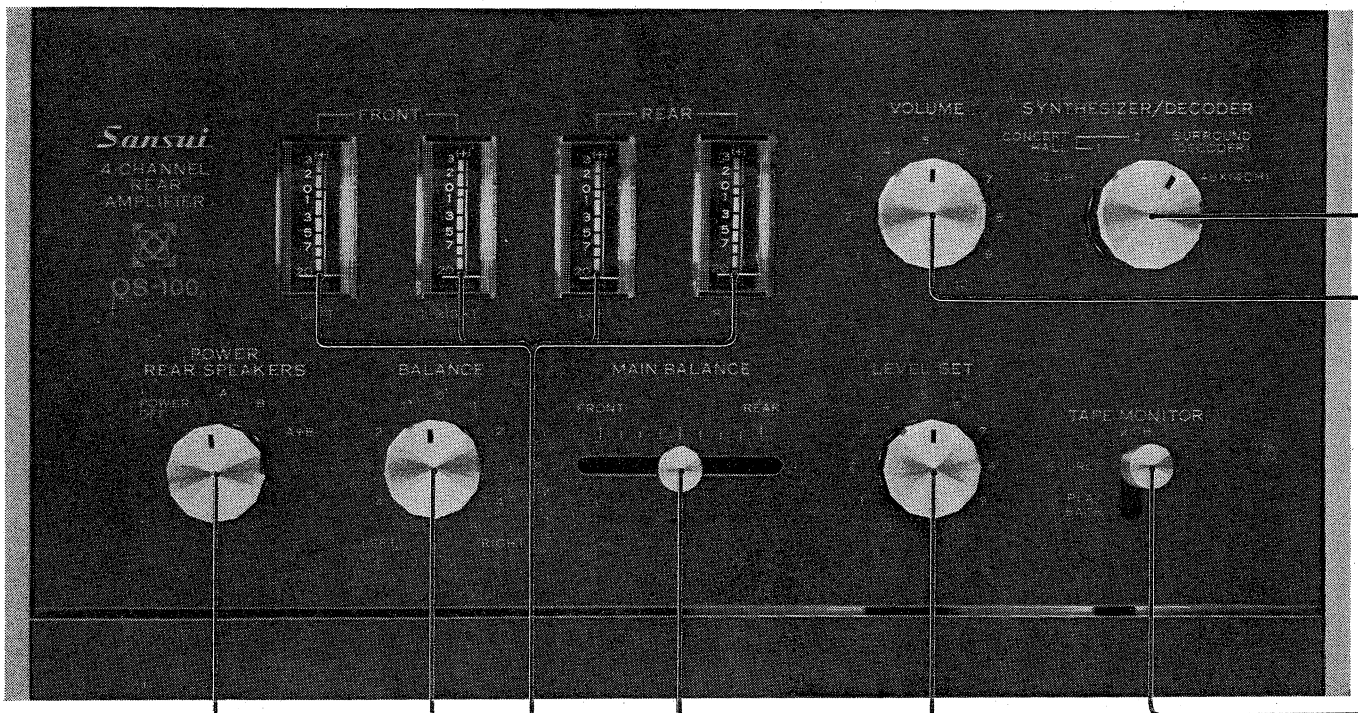

Sansui
4 CHANNEL
REAR
AMPLIFIER
QS-100
FRONT
REAR
VOLUME
SYNTHESIZER/DECODER
POWER
REAR SPEAKERS
BALANCE
MAIN BALANCE
FRONT
REAR
LEVEL SET
TAPE MONITOR
PLAY
TAPE

SWITCHES AND CONTROLS



Power/Rear Speakers Switch

A double-function switch to control the power supply and the selection of rear-channel speaker systems.

POWER OFF: Cuts off the power supply for the entire unit.

A: Turns on the power supply and energizes the speaker systems connected to the SYSTEM A terminals on the unit's rear panel.

B: Turns on the power supply and energizes the speaker systems connected to the SYSTEM B terminals.

A+B: Turns on the power supply and energizes both pairs of speaker systems.

Level Meters

Indicate the signal strength in each channel. From left to right, they represent the front left, front right, rear left and rear right channels.

Balance Control

Adjusts the balance between the left and right channels, both front and rear simultaneously. Turn it clockwise to increase the sound volume in the front and rear right channels, counterclockwise to increase that in the front and rear left channels.

Volume Control

Use to control the overall sound volume. Turn it clockwise to raise it, counterclockwise to lower it.

Note: When you turn off the tape monitor switch of your front-channel amplifier, or set it to SOURCE, fully turn down its volume control beforehand.

2-Channel Tape Monitor Switch

Set to PLAYBACK to hear a 2-channel stereo tape being played back by a 2-channel tape deck connected to the unit's rear panel. If the tape deck is a 3-head type, set the switch before you begin to record into it, and you'll be able to hear the recording immediately reproduced for monitoring.
Keep it at SOURCE if neither of the above situations applies.

Level Set Control

Use to adjust the level of input signals. Set it where the front channel level meters swing to the red 1 or 2 mark at the loudest passages of the selection to be played.

Main Balance Control

Adjusts the balance between the front and rear channels. Slide it to the left to increase the sound volume in the front channels, to the right to increase that in the rear channels.

Function Selector

A 5-position control to permit selecting the sound effect best suited to the type of program being heard.

2-CH: For regular 2-channel stereo sound from the front left and right speaker systems only.

CONCERT HALL-1: For orchestras, big band jazz, etc.
Suitable for most purposes. The 'Front 2-2 System' of speaker position (see page 8) is more effective.

CONCERT HALL-2: For solo performances, vocal numbers and other small band selections. The 'Front 2-2 System' of speaker position is also more effective.

SURROUND (DECODER): Suitable for programs which sound most effective with the musical instruments scattered throughout the room, such as popular music, mood music, Moog sound, rock 'n' roll, rhythm and blues, etc. Set to this position also when hearing a two-channel record, tape or FM broadcast encoded from four channels by the Sansui 4-Channel Encoder (recording matrix). Distinct sound images of the musical instruments and singers will be formed in the room giving you a 4-channel stereo effect equal to or even better than that obtainable from a discrete 4-channel stereo system. For this sound effect, the '2-2 System' of speaker position (see page 8) is more effective.

AUX (4-CH): To hear a 4-channel stereo tape being played back by a 4-channel tape deck connected to the AUX (4-CH) terminals on the unit's rear panel. Also good for hearing any other 4-channel program sources that may be connected to the same terminals.

CONNECTIONS

Your QS-100 permits you to continue to use your present 2-channel stereo receiver, amplifier or music system and speaker systems for the front channels in a 4-channel stereo system. Instructions will be given below on making the necessary connections, but before you set out to make such connections, examine the connections among the various pieces of equipment in your present stereo set-up once more. If a tape deck is connected, disconnect it once. (Refer to the instructions on the connections of a 2-channel tape deck on page 6.)

However, if you have bought the amplifier and speaker systems for the front channels for the first time, connect them for regular 2-channel stereo, as instructed by their manufacturers.

When the above preparations are finished, proceed to make the connections, referring to both the instructions below and the diagram on page 7.

Be sure to make them firm and secure.

Connecting the QS-100 to the Front-Channel Amplifier

Take out the four shielded cords from the accessory kit supplied with your QS-100. Then:

1. Connect a pair of them between the terminal marked "FROM REC OUT" on the unit's rear panel and the tape recording terminal of the front-channel amplifier.

2. Connect another pair between the terminal marked "TO TAPE PLAY" and the amplifier's tape playback or monitor terminal.

Be sure that the left and right channels are kept in the same order at both terminals. The accessory shielded cords are colored in blue and yellow to make this easy.

Note: Once you have made the above connections, turn on the tape monitor switch of the front-channel amplifier (or set it to PLAYBACK).

Connecting the Rear-Channel Speaker Systems

Up to two pairs of speaker systems can be connected to the QS-100 to reproduce rear-channel sound, and can be driven either independently or simultaneously as selected by the unit's Power/Rear Speakers Switch.

If you are connecting only one pair, connect it to either SYSTEM A or SYSTEM B terminal. Keep the left and right channels, plus and minus polarities in the correct order, referring to the diagram on page 7. Should you want to add another pair at a later date, connect it to the other terminal.

If you have two pairs of speaker systems connected to the QS-100, it is suggested that you place one pair to form the '2-2 System' and the other to form the 'Front 2-2 System' of speaker position (see page 8).

About the Speaker Polarities

Whether or not the four speaker systems in a 4-channel stereo system are in phase with one another is an important factor to the maximum enjoyment of 4-channel stereo sound.

The phase relationship must be correct not only between the front left and right speakers, and the rear left and right speaker systems, but also between the front channels and the rear channels.

Even if you have connected the four speaker systems to the two amplifiers with correct polarities between each pair, the speakers may not be in phase with one another if the amplifiers essentially differ in circuit design.

They may also fail to achieve a correct phase relationship because of certain acoustic conditions of your room.

If such seems to have taken place, change the rear speaker connections and change their polarities while actually listening to them until you feel certain you've obtained a most natural 4-channel stereo effect.

Note:

1. The speaker systems connected to your QS-100 must possess an impedance of 4 to 16 ohms. If you want to connect two pairs and drive them simultaneously (by turning the unit's Power/Rear Speakers Switch to the "A+B" position), they should all have an impedance of 8 ohms or more.

2. As your QS-100 connects up to two pairs of speaker systems for the rear channels and allows selecting either or both pairs, you could install a 4-channel stereo system in two rooms and operate them simultaneously or independently, provided that your front-channel amplifier is equipped with a speaker selector switch similar to the QS-100's Power/Rear Speakers Switch.

Connecting Tape Decks

2-Channel Tape Deck

Since you connect your QS-100 to the tape recording and monitor terminals of your front-channel amplifier, you cannot connect a 2-channel tape deck to that amplifier. This is why your QS-100 is equipped with recording and monitor terminals for such a tape deck. There are both pin jack type terminals and a DIN connector socket, and either may be used.

If you want to use pin jack terminals:

1. Connect one pair of shielded cords between the "TAPE REC" terminal of the QS-100 and the recording input terminal of the tape deck.

2. Connect another pair of such cords between the unit's "TAPE PLAY" terminal and the tape deck's playback output terminal. Be sure to keep the left and right channels in the same order at both terminals in each case.

If your tape deck is equipped only with a DIN connector socket, however, plug the DIN connector cord extending from it into the 5-pin DIN connector socket on the QS-100's rear panel.

4-Channel Tape Deck

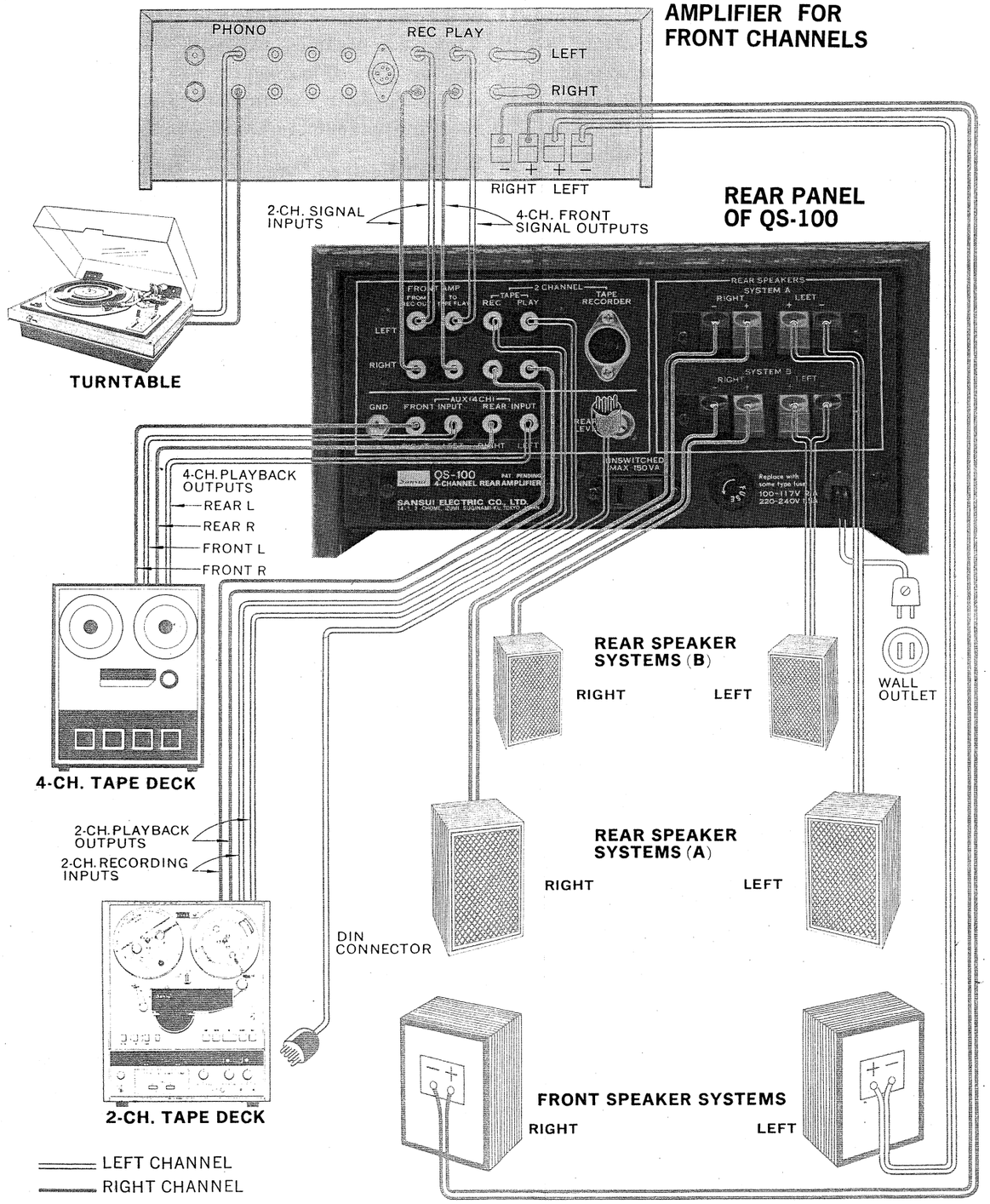
The QS-100 is also equipped with playback terminals for a 4-channel tape deck.

To reproduce a 4-channel stereo tape on such a tape deck, connect them with the output terminals of the deck, using shielded cords. Be sure not to confuse the the front and rear, left and right channels.

Note:

On many tape decks, each of the four channels is designated as follows:

FRONT LEFT .....CHANNEL 1 or TRACK 1
FRONT RIGHT ....CHANNEL 3 or TRACK 3
REAR LEFT .....CHANNEL 2 or TRACK 2
REAR RIGHT .....CHANNEL 4 or TRACK 4



TO ENJOY 4-CHANNEL STEREO AT ITS BEST

The 4-channel stereo system far excels the conventional 2-channel system in its capability to faithfully reproduce the sound field normally present at the time of any live performance.
Your QS-100 incorporates a QS decoding matrix to re-organize ordinary two-channel stereo signals to four channels and establish clear sound images of the musical instruments and singers, and then Sansui's exclusive phase-modulator circuit to lend the sound field the liveliness or presence of the original sound field.
The end effect is so exciting and enthralling that many audio experts the world over have termed it purely revolutionary. It is particularly outstanding when the instrument is used to reproduce two-channel programs encoded from four channels by the Sansui 4-Channel Encoder.
To enjoy such 4-channel stereo sound at its best, you should be familiar with certain basic facts about the position of the speaker systems and so forth.

Selecting Rear Speaker Systems

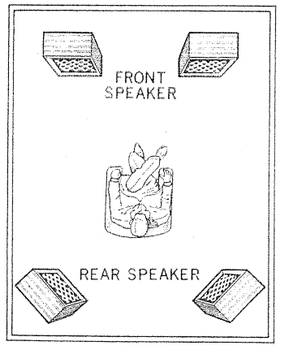
Needless to say, the best 4-channel stereo effect will be realized by using identical speaker systems for both the front and rear channels. But Sansui's QS system of 4-channel stereo is designed so that compact systems, such as the Sansui SP-50, SP-30 and SP-10, are quite sufficient for use for the rear channels and allow your QS-100 to produce more than satisfactory 4-channel stereo sound. The speaker systems, however, should be able to reproduce sound with natural tonal quality and not affected in one way or another.

Speaker System Positions

The positions of the four speaker systems in a 4-channel stereo system is an essential consideration if you are to enjoy 4-channel stereo sound at its best, and it is very important that you place them appropriately to suit the type of program source you wish to hear.
Two basic positions will be discussed below, but you are free to adapt them to the particular conditions—both acoustic and physical—of your room for optimum 4-channel stereo effects.

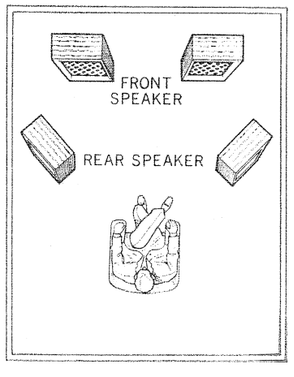
1. 2-2 System

This is the 4-corner position that is widely accepted as the 'standard' for 4-channel stereo. While it is particularly fit for use when hearing material encoded by the Sansui 4-Channel Encoder, it is also effective for these types of material: mood music, popular music, contemporary music, Moog sound, rhythm and blues, musicals, and live recordings.



2. Front 2-2 System

This system moves the rear speaker systems up front as shown below and creates a sound field—the equivalent of a concert hall stage—in front of the listener. It is suitable for those types of material which more or less require an objective attitude of the audience, such as: symphonies, operas, chamber music, modern jazz and big band jazz.



3. Others

Variations of the above two systems are possible, and you are absolutely free to devise one to suit the particular conditions of your room.

ADJUSTMENTS

Having read the foregoing instructions on the functions and connections of your newly acquired QS-100 and proper speaker positions, you are most ready to step into the immensely richer world of 4-channel stereo. Before you step out, however, make the following adjustments and you'll save yourself a lot of trouble in the future.

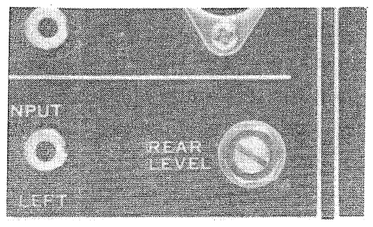
Setting for Optimum Input Signal Levels

1. Turn down slightly the volume controls of your QS-100 and front-channel amplifier, and turn the Level Set Control of your QS-100 fully counterclockwise. Then turn on their power switches.
2. Turn on the tape monitor switch of your front-channel amplifier.
3. Turn the Function Selector to an appropriate position other than "AUX (4-CH)", then set the unit's two balance controls to their respective center positions.
4. Operate your front-channel amplifier and play a record just as you would do in 2-channel sound reproduction.
5. Turn the Level Set Control clockwise gradually, and you'll notice the four level meter pointers begin to swing. Leave the control where the front-channel level meters swing as far as the red 1 or 2 mark at the loudest passages of the music.

Note:
If your radio tuner and tape decks also have provisions for adjusting their output signal levels, match them to the output level of the phonograph (or turntable or record changer). This will save you the trouble of readjusting the Level Set Control (or Volume Control) every time you change the program source.

Adjusting Volume Balance between the Front/Rear Channels

1. Set your QS-100's two balance controls at their respective center positions.
2. Turn the unit's Volume Control all the way up to the maximum, turning down the front-channel amplifier's volume control simultaneously so as to obtain the loudest volume you can tolerate in daily listening.
3. Now turn down your QS-100's Volume Control to the usual listening level, and then adjust the "REAR LEVEL" control on the unit's rear panel to achieve optimum balance between the front and rear channels.
4. Once the above adjustments are finished, use the QS-100's Volume Control to make any temporary volume adjustments in the course of daily listening.



Adjusting Volume Balance between the Left/Right Channels

The Balance Control of your QS-100 adjusts simultaneously the volume balance between the front left and right channels, and that between the rear left and right channels. To achieve precise balance with greater ease, however, first adjust it for optimum balance between the rear left and right channels. Then if you feel the front left and right channels are not well balanced, correct it by manipulating the balance control of your front-channel amplifier.

OPERATIONS

Reception of FM Stereo Broadcasts/Playing Records

Operating your QS-100 to receive FM stereo broadcasts or to play records is very simple. Just turn on the tape monitor switch of your front-channel amplifier (or set it to "PLAYBACK"), and the rest is the same as 2-channel reproduction. Make any volume and/or balance adjustments with the appropriate controls on the QS-100. Use other controls on the unit for the best 4-channel stereo effect, following instructions on pages 8.

Recording/Playing a 2-Channel Stereo Tape

Two-channel stereo tape recordings can be made and reproduced by the use of a 2-channel stereo tape deck connected to the QS-100. If the tape deck is a 3-head type (with separate record and playback heads), it is possible to record a tape and reproduce it simultaneously for the purpose of monitoring.

Recording

1. Set the function selector control of the front-channel amplifier to the program source to be recorded—such as phono, FM, microphone, auxiliary input, etc.

2. Start the tape deck in the recording mode.

Note:
Set the Tape Monitor Switch of the QS-100 to "PLAYBACK" if you want to monitor the recording as you make it.

Playback

1. Set the Tape Monitor Switch of the QS-100 to "PLAYBACK."

2. Start the tape deck in the playback mode.

3. Adjust the playback volume control of the tape deck so that the front-channel level meter pointers of the QS-100 will swing to the red 1 or 2 mark at the loudest passeges of the music being reproduced.

4. Use the various controls on both the QS-100 and front-channel amplifier to obtain the best 4-channel stereo effect for the type of music being reproduced.

Playing a 4-Channel Stereo Tape

1. Set the Function Selector of the QS-100 to "AUX (4-CH)."

2. Start the 4-channel tape deck in the playback mode.

3. Adjust the playback volume control of the tape deck so that the level meter pointers on the QS-100 will swing to the red 1 or 2 mark at the loudest passages of the music being reproduced.

4. Use the various controls on both the QS-100 and your front-channel amplifier to obtain the best 4-channel stereo effect for the type of music being reproduced.

SIMPLE MAINTENANCE HINTS

If the Rear-Channel Sound is Shaky

You may sometimes notice the sound from the rear speaker systems is shaky when that from the front speaker systems is not. Probable causes of this condition include the following:

1. The record is damaged or worn out.
2. The cartridge stylus is damaged or has dust on it.
3. The stylus pressure of the cartridge is either too light or heavy.
4. The cartridge itself is faulty.
5. The level of the input signals fed to the QS-100 is too high.
6. The sound in the record or tape is distorted to begin with.
7. The stereo separation of the FM tuner is poor, or the FM antenna input is insufficient and the broadcast signal contains considerable noise.

If the Separation of the Front/Rear, Left/Right Channels is Poor

While your QS-100 is designed so that the sounds from the four speaker systems blend with one another to form an integrated sound field, the separation of the front and rear channels, and the left and right channels, may be disturbingly poor sometimes, for one of the following reasons:

1. The program source itself is poor in stereo separation.
2. The left and right channels of the program source are not in phase.
3. The left and right channels of the program source differ in output voltage.

To Connect the Front-Channel Amplifier, etc.

Use the pin plug-equipped shielded cords supplied with your QS-100 to connect the front-channel amplifier. If you should choose to use other cords for some reason, they should be relatively thick and have a minimum of distributed capacity. And try to keep them as short as possible. Observe the same cautions when connecting tape decks.

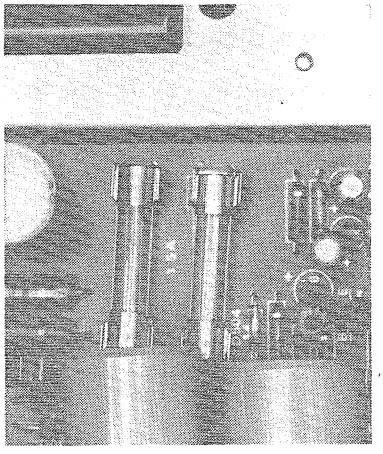
About the Place of Installation

The bonnet of the QS-100 is designed so that any heat radiated inside will escape through it. Sufficient care should be taken of the dissipation of such heat if you wish to place something on top of the QS-100 or put the unit inside a closed cabinet, etc. Above all, avoid placing it where it may be exposed to the direct sunlight.

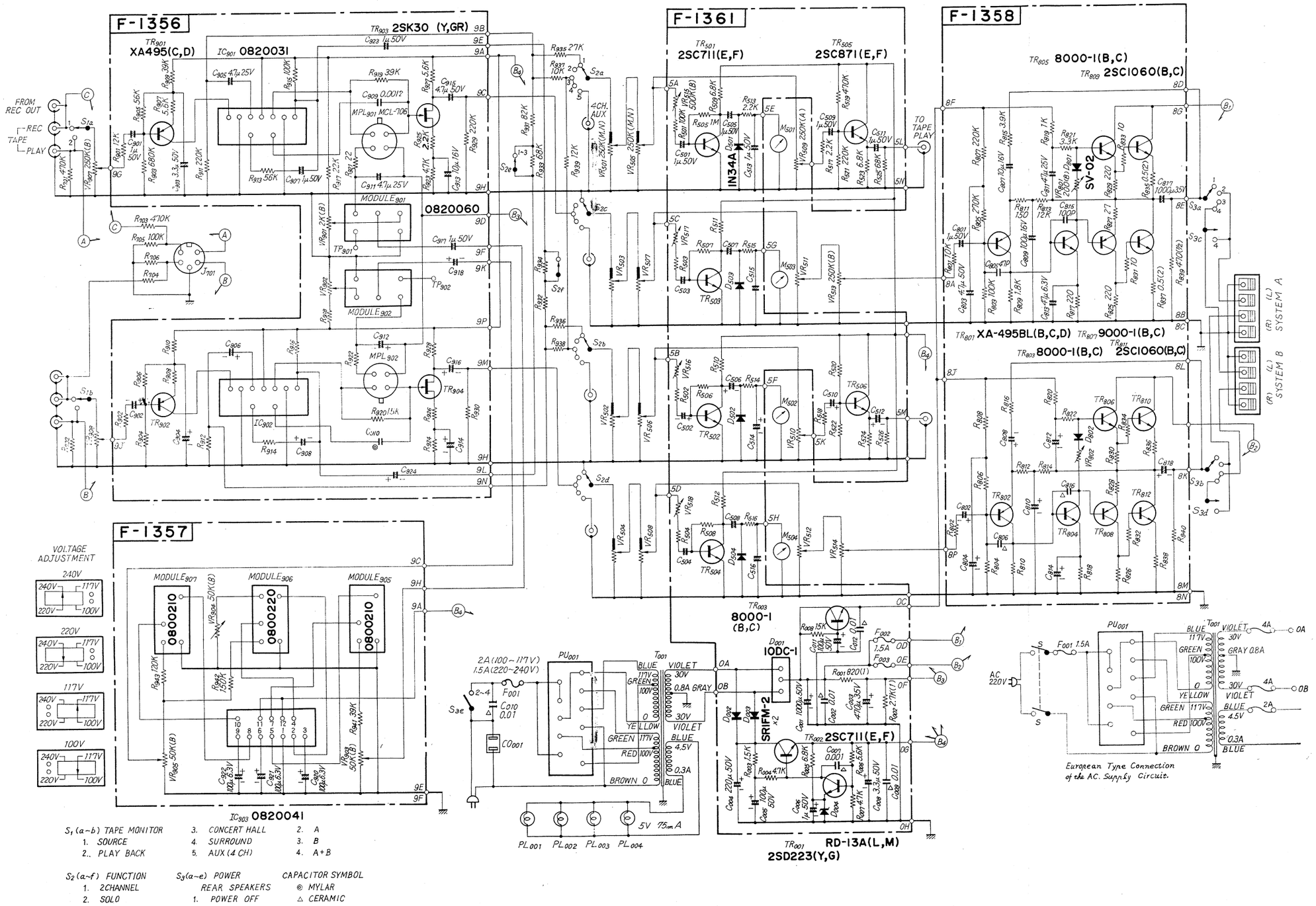
About the Quick-Acting Fuses

If the level meters of the QS-100 illuminate but no sound is heard from both or either of the rear speaker systems, examine their connections and operation once. If nothing is wrong with them, it is possible that both or either of the quick-acting fuses protecting the power transistors has blown.

If this happens, disconnect the power cord from the AC outlet, remove the bonnet of the QS-100, and check the two quick-acting fuses mounted on the printed circuit board designated F-1361. If you find both or either of them blown, discover and eliminate the cause of the blowout, and replace it with a new 1.5-ampere quick-acting fuse supplied. Probable causes of the blowout include excessively large input signals and a short-circuit at the speaker terminals.



SCHEMATIC DIAGRAM



European Type Connection of the AC. Supply Circuit.

S_1 (a~b) TAPE MONITOR
1. SOURCE
2. PLAY BACK

S_2 (a~f) FUNCTION
1. 2CHANNEL
2. SOLO
3. CONCERT HALL
4. SURROUND
5. AUX (4 CH)

S_3 (a~e) POWER
REAR SPEAKERS
1. POWER OFF
2. A
3. B
4. A+B

CAPACITOR SYMBOL
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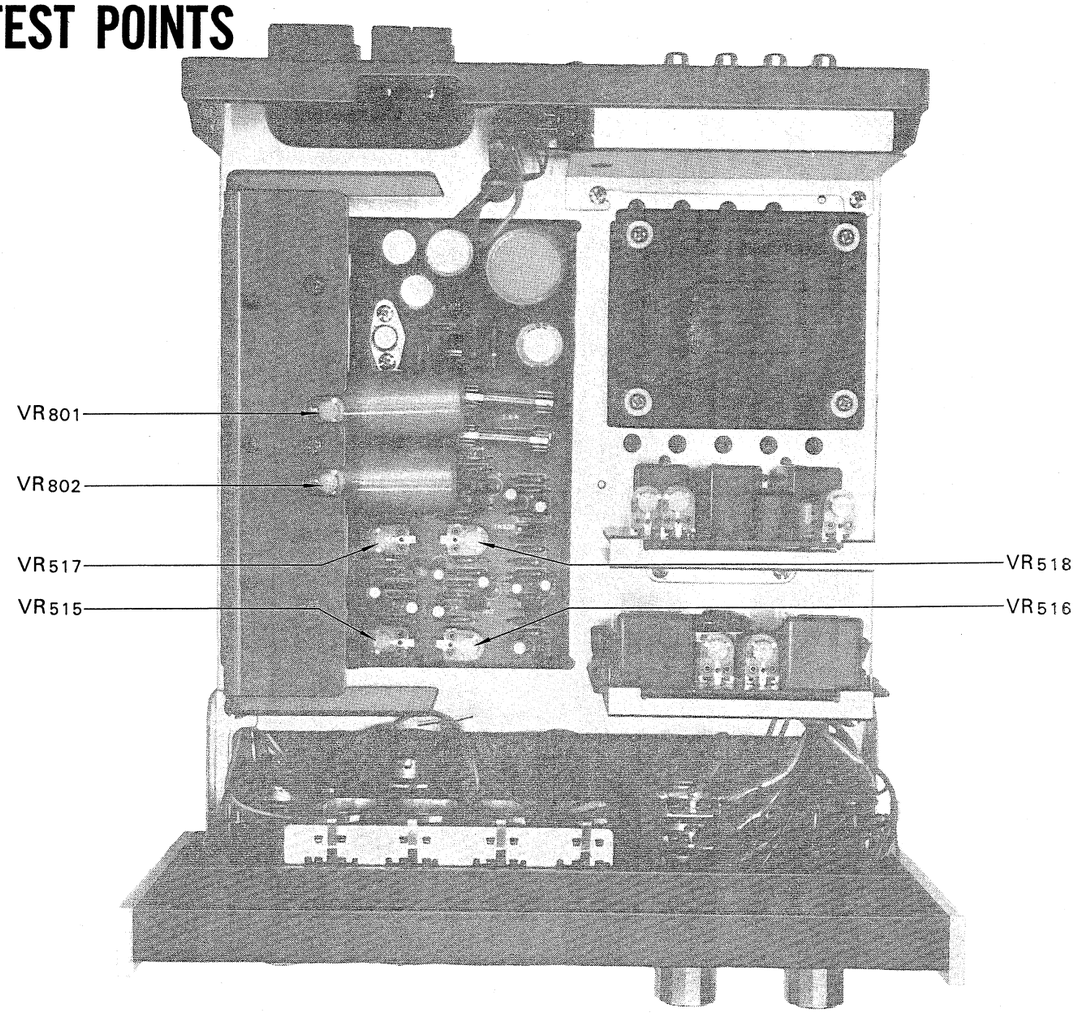
△ CERAMIC

TEST POINTS/ABOUT SERVICING/ACCESSORIES

TEST POINTS



About Servicing

If anything should ever go wrong with your QS-100 or if you have any question about it, please contact the Sansui dealer from whom you purchased it or your nearest Authorized Sansui Service Station.

ACCESSORIES

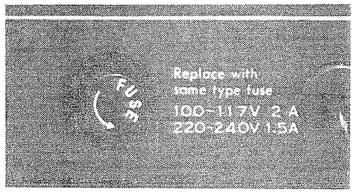
1. OPERATING INSTRUCTIONS & SERVICE MANUAL 1
2. INFORMATION SHEET 1
3. CONNECTION CORDS WITH PIN-PLUGS .. 4
4. BUTTERFLY BOLTS 2
5. WASHERS 2
6. QUICK ACTING FUSES (1.5 AMPERES) .. 2
7. POLISHING CLOTH 1

Should the Power Fuse Blow

If the level meters fail to glow and the QS-100 remains dead when you turn on the Power/Rear Speakers Switch, it is possible that its power fuse has blown.

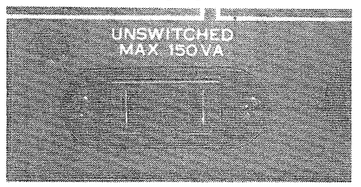
If this happens, disconnect the power cord from the AC outlet and examine the power fuse on the unit's rear panel. If you find it blown, find out the cause of the blowout and eliminate it, then replace the blown fuse with a new glass-tubed fuse of the rated capacity (2-ampere for 100 and 117 volts, 1.5-ampere for 220 and 240 volts).

Never use a fuse of a different capacity or a piece of wire, even as a stop-gap measure, or serious danger could result.



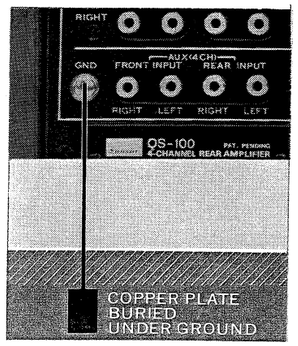
AC Outlet

Power supply for the front-channel amplifier or a tape deck may be derived from the AC outlet on the QS-100's rear panel, but the total power requirement of the equipment so connected should never exceed 150VA (maximum capacity).



Grounding

Any noise picked up by the connecting cords may be effectively grounded by connecting a piece of PVC (poly-vinyl chloride) or enameled wire to the grounding terminal on the QS-100's rear panel, attaching a small copper plate or carbon rod to the other end and burying it deep underground. The grounding leads of other equipment in the system may be connected to the same terminal to ground the entire system at once.



Voltage Adjustment

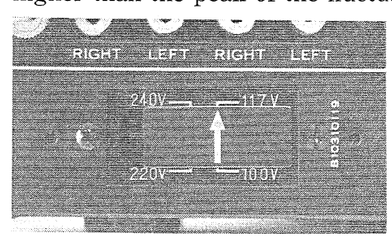
In order to permit the use of your QS-100 in any part of the world, your QS-100 is equipped with a Voltage Selector. It is set to the correct power supply voltage of your area prior to shipment, so there is no need to touch it. However, should you move after purchasing the unit and find the power supply voltage is different, simply reset the selector as follows:

1. Remove the two screws securing the name plate on the unit's rear panel, then remove the name plate.

2. Unplug the Voltage Selector once, and reset it so that the arrow mark on it faces the correct voltage indication.

3. Change the power fuse also whenever the power supply voltage has changed. For 100–117 volt operation, use a 2-ampere glass-tubed fuse. For 220–240 volt operation, use a 1.5-ampere version of such fuse.

4. Where the power supply voltage considerably fluctuates, the Voltage Selector may be reset to avoid unpleasant side effects of such fluctuation. Reset it to the voltage immediately higher than the peak of the fluctuation.



ALIGNMENT

CURRENT ALIGNMENT OF REAR-CHANNEL POWER AMPLIFIER

STEP	CONNECT / ADJUST	REMARKS
1.	Remove F_{002} and F_{003}.	
2.	Turn VR_{801} and VR_{802} fully counterclockwise (↶).	
3.	Turn on the Power/Rear Speakers Switch.	
4.	Connect an ammeter (tester) where F_{002} was (connect terminal indicated OD on circuit schematic with ammeter's minus terminal).	Be sure power is turned on before connecting ammeter. Set ammeter to its 50–100 mA range.
5.	Turn VR_{801} slowly clockwise (↷) until ammeter shows 15mA.	
6.	Turn off power, then replace F_{002}.	
7.	Turn on power again.	
8.	Connect an ammeter (tester) where F_{003} was (connect terminal indicated OE on circuit schematic with ammeter's minus terminal).	Same as step 4.
9.	Turn VR_{802} slowly clockwise (↷) until ammeter shows 15mA.	
10.	Turn off power, then replace F_{003}.	

ALIGNMENT OF LEVEL METERS

STEP	CONNECT / ADJUST
1.	Set both Balance Control and Main Balance Control at respective center positions.
2.	Set Function Selector to "AUX (4-CH)."
3.	Set a low-frequency oscillator to 1 KHz, 775mV, then connect it to AUX (4-CH) FRONT INPUT left-channel input terminal.
4.	Adjust VR_{515} so that front left-channel level meter swings to "0."
5.	Make similar adjustments with VR_{516}, VR_{517} and VR_{518} for front right, rear left and rear right channel level meters, respectively.

SPECIFICATIONS/DISASSEMBLY PROCEDURE

SYNTHESIZER SECTION

INPUT LEVEL
- RATED INPUT (2-channel): 200mV (50k ohms)
- MINIMUM INPUT (2-channel): 100mV
- 4-CHANNEL INPUT: 775mV (50k ohms)
- TAPE MONITOR (pin, DIN): 200mV (50k ohms)

OUTPUT LEVEL (FRONT)
- RATED OUTPUT: 775mV
- MAXIMUM OUTPUT: 2.5V

RECORDING OUTPUT (2-channel)
- TAPE REC (pin): 200mV
- TAPE RECORDER (DIN): 30mV

FREQUENCY RESPONSE
- FRONT CHANNEL: 20 to 20,000Hz ±1dB
- REAR CHANNEL: 20 to 20,000Hz ±1dB

SYNTHESIZATION OF REAR CHANNEL SIGNAL:
1. NEW SANSUI'S MATRIX SYSTEM
2. SANSUI'S PHASE MODULATION SYSTEM

PHASE MODULATION: max. 180 degrees at 10,000Hz

HUM AND NOISE (IHF): less than −70dB

POWER AMPLIFIER SECTION

POWER OUTPUT
- MUSIC POWER (IHF): 50W at 4 ohms load, 44W at 8 ohms load
- CONTINUOUS POWER: 18/18W at 4 ohms load, 15/15W at 8 ohms load

TOTAL HARMONIC DISTORTION: less than 0.8% at rated output

INTERMODULATION DISTORTION: less than 1% at rated output

POWER BANDWIDTH (IHF): 25 to 40,000Hz

FREQUENCY RESPONSE (at normal listening level): 20 to 50,000Hz ±1dB

CHANNEL SEPARATION: better than 50dB (at 1,000Hz)

HUM AND NOISE: less than −80dB

LOAD IMPEDANCE: 4 to 16 ohms

DAMPING FACTOR: 70 at 8 ohms load

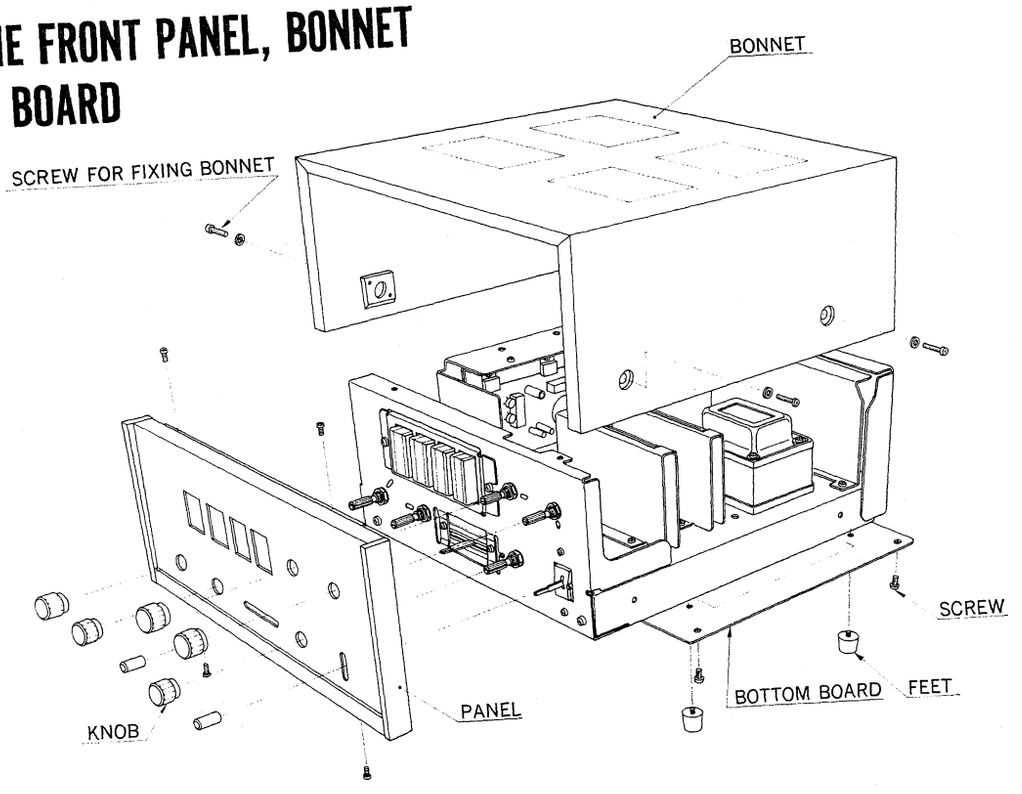
SEMICONDUCTORS:
Transistors; 23 Diodes; 10 IC; 3 FET; 2 Module; 5

POWER REQUIREMENTS
- POWER VOLTAGE: 100, 117, 220, 240V 50/60Hz
- POWER CONSUMPTION: 85W (max. signal)

DIMENSIONS: 250mm (9 7/8″)W, 127mm(5″)H, 278mm(11″)D

WEIGHT: 5.1kg (11 lbs.)

REMOVING THE FRONT PANEL, BONNET AND BOTTOM BOARD



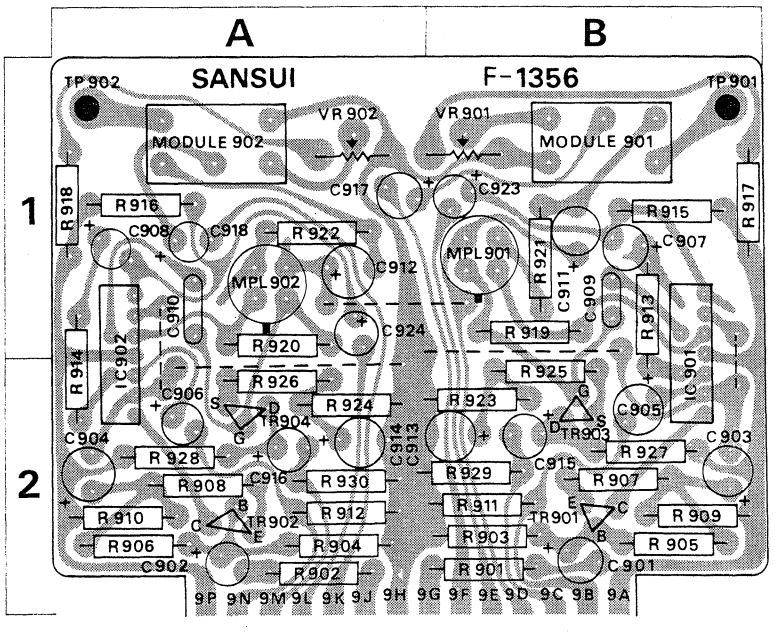
PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. **X:** Parts Name **Y:** Stock No. **Z:** Position of Parts

SYNTHESIZER BLOCK 〈F-1356A〉

W	X	Y	Z
R901	12kΩ ±10% 1/4W CR.	0101123	2 B
R902	12kΩ	0101123	2 A
R903	680kΩ	0101684	2 B
R904	680kΩ	0101684	2 A
R905	56kΩ	0101563	2 B
R906	56kΩ	0101563	2 A
R907	5.6kΩ	0101562	2 B
R908	5.6kΩ	0101562	2 A
R909	39kΩ	0101393	2 B
R910	39kΩ	0101393	2 A
R911	220kΩ	0101224	2 B
R912	220kΩ	0101224	2 A
R913	56kΩ	0101563	1 B
R914	56kΩ	0101563	1, 2 A
R915	100kΩ	0101104	1 B
R916	100kΩ	0101104	1 A
R917	22kΩ	0101223	1 B
R918	22kΩ	0101223	1 A
R919	39kΩ	0101393	1 B
R920	15kΩ	0101153	1 A
R921	22Ω	0101220	1 B
R922	22Ω	0101220	1 A
R923	4.7kΩ	0101472	2 B
R924	4.7kΩ	0101472	2 A
R925	2.2kΩ	0101222	2 B
R926	2.2kΩ	0101222	2 A
R927	5.6kΩ	0101562	2 B
R928	5.6kΩ	0101562	2 A
R929	220kΩ	0101224	2 B
R930	220kΩ	0101224	2 A
VR901	2kΩ (B)	1031072	2 B
VR902	2kΩ (B)	1031072	1 B

W	X	Y	Z
C901	1μF 50V EC.	0515109	2 B
C902	1μF 50V EC.	0515109	2 A
C903	3.3μF 50V EC.	0515339	2 B
C904	3.3μF 50V EC.	0515339	2 A
C905	4.7μF 25V EC.	0513479	2 B
C906	4.7μF 25V EC.	0513479	2 A
C907	1μF 50V EC.	0515109	1 B
C908	1μF 50V EC.	0515109	1 A
C909	0.0012μF ±10% 50V MC.	0601126	1 B
C910	0.0012μF ±10% 50V MC.	0601126	1 A
C911	4.7μF 25V EC.	0513479	1 B
C912	4.7μF 25V EC.	0513479	1 A
C913	10μF 16V EC.	0512100	2 A
C914	10μF 16V EC.	0512100	2 A
C915	4.7μF 50V EC.	0515479	2 B
C916	4.7μF 50V EC.	0515479	2 A
C917	1μF 50V EC.	0515109	1 A
C918	1μF 50V EC.	0515109	1 A
C923	1μF 50V EC.	0515109	1 B
C924	1μF 50V EC.	0515109	1 A
TR901	XA495BL (C,D)	0300162, 3	2 B
TR902	XA495BL (C,D)	0300162, 3	2 A
TR903	2SK30 (Y,GR)	0370102, 3	2 B
TR904	2SK30 (Y,GR)	0370102, 3	2 A
IC901	Hybrid IC.	0820031	1, 2 B
IC901	Hybrid IC.	0820031	1, 2 A
MODULE901	CR Compound Circuits	0820060	1 B
MODULE902	CR Compound Circuits	0820060	1 A
MPL901	MCL-706	0920021	1 B
MPL902	MCL-706	0920021	1 A

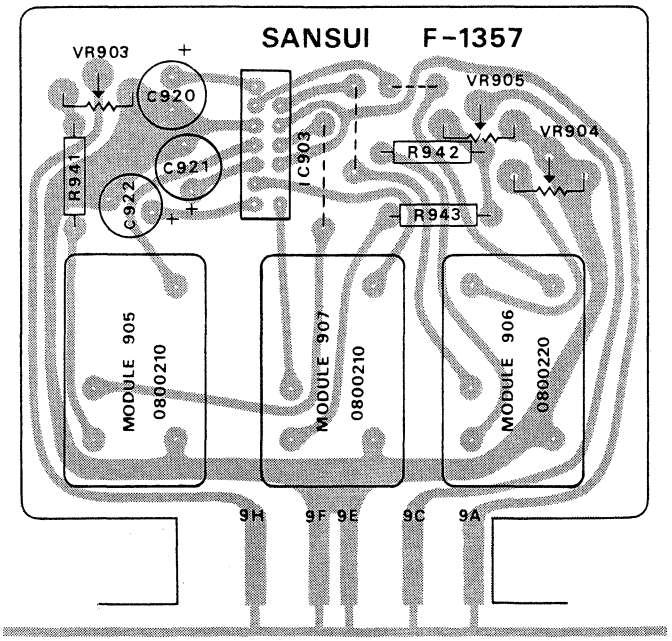


PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. **X:** Parts Name **Y:** Stock No. **Z:** Position of Parts

OSCILLATOR BLOCK 〈F-1357〉

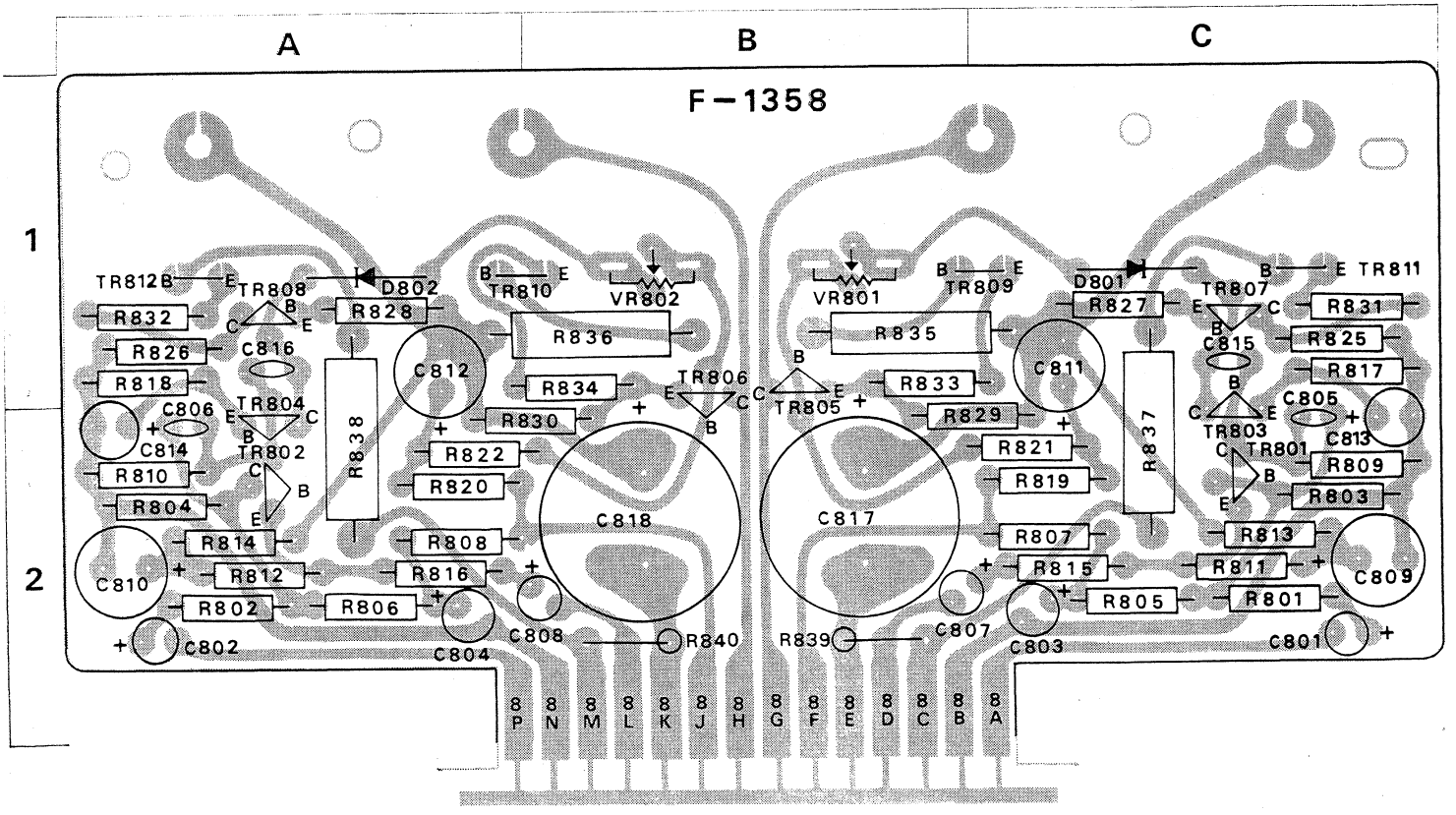
W	X	Y
R941	39kΩ } ±10% 1/4W CR.	0001393
R942	150kΩ } ±10% 1/4W CR.	0001154
R943	120kΩ } ±10% 1/4W CR.	0001124
VR903	} 50kΩ(B)	1031132
VR904	} 50kΩ(B)	1031132
VR905	} 50kΩ(B)	1031132
C920	} 100μF 6.3 V EC.	0510101
C021	} 100μF 6.3 V EC.	0510101
C922	} 100μF 6.3 V EC.	0510101
IC903	Hybrid IC	0820041
MODULE005	} CR Compound Circuits	0800210
MODULE906	} CR Compound Circuits	0800220
MODULE907	} CR Compound Circuits	0800210



POWER AMP. 〈F-1358A〉

W	X	Y	Z
R801	10kΩ } ±10% 1/4W CR.	0101103	2C
R802	10kΩ } ±10% 1/4W CR.	0101103	2A
R803	100kΩ } ±10% 1/4W CR.	0101104	2C
R804	100kΩ } ±10% 1/4W CR.	0101104	2A
R805	270kΩ } ±10% 1/4W CR.	0101274	2C
R806	270kΩ } ±10% 1/4W CR.	0101274	2A
R807	220kΩ } ±10% 1/4W CR.	0101224	2C
R808	220kΩ } ±10% 1/4W CR.	0101224	2A
R809	1.8kΩ } ±10% 1/4W CR.	0101182	2C
R810	1.8kΩ } ±10% 1/4W CR.	0101182	2A
R811	150Ω } ±10% 1/4W CR.	0101151	2C
R812	150Ω } ±10% 1/4W CR.	0101151	2A
R813	12kΩ } ±10% 1/4W CR.	0101123	2C
R814	12kΩ } ±10% 1/4W CR.	0101123	2A
R815	3.9kΩ } ±10% 1/4W CR.	0101392	2C
R816	3.9kΩ } ±10% 1/4W CR.	0101392	2A
R817	220Ω } ±10% 1/4W CR.	0101221	1C
R818	220Ω } ±10% 1/4W CR.	0101221	1A
R819	1kΩ } ±10% 1/4W CR.	0101102	2C
R820	1kΩ } ±10% 1/4W CR.	0101102	2A
R821	3.3kΩ } ±10% 1/4W CR.	0101332	2C
R822	3.3kΩ } ±10% 1/4W CR.	0101332	2A, B
R825	220Ω } ±10% 1/4W CR.	0101221	1C
R826	220Ω } ±10% 1/4W CR.	0101221	1A
R827	27Ω } ±10% 1/4W CR.	0101270	1C
R828	27Ω } ±10% 1/4W CR.	0101270	1A
R829	220Ω } ±10% 1/4W CR.	0101221	2B, C
R830	220Ω } ±10% 1/4W CR.	0101221	2A, B
R831	10Ω } ±10% 1/4W CR.	0101100	1C
R832	10Ω } ±10% 1/4W CR.	0101100	1A
R833	10Ω } ±10% 1/4W CR.	0101100	1B, C
R834	10Ω } ±10% 1/4W CR.	0101100	1A, B
R835	0.5Ω } ±10% 2W CeR.	0152478	1B, C
R836	0.5Ω } ±10% 2W CeR.	0152478	1A, B
R837	0.5Ω } ±10% 2W CeR.	0152478	1, 2C
R838	0.5Ω } ±10% 2W CeR.	0152478	1, 2A
R839	470Ω } ±10% 1/2W SR.	0111471	2B
R840	470Ω } ±10% 1/2W SR.	0111471	2B
VR801	200Ω (B) } DC Balance Adj.	1031022	1B
VR802	200Ω (B) } DC Balance Adj.	1031022	1B
C801	1μF } 50V EC.	0515109	1C
C802	1μF } 50V EC.	0515109	2A
C803	4.7μF } 50V EC.	0515479	2C
C804	4.7μF } 50V EC.	0515479	2A
C805	47pF } 50V CC.	0660470	2B
C806	47pF } 50V CC.	0660470	2A
C807	10μF } 16V EC.	0512100	2B, C
C808	10μF } 16V EC.	0512100	2A, B
C809	100μF } 16V EC.	0512101	2C
C810	100μF } 16V EC.	0512101	2A

W	X		Y	Z
C811	47μF	25V EC.	0513470	1 C
C812	47μF		0513470	1 A
C813	47μF	6.3V EC.	0510470	2 C
C814	47μF		0510470	2 A
C815	100pF	±10% 50V CC.	0660101	1 C
C816	100pF		0660101	1 A
C817	1000μF	35V EC.	0549004	2 B
C818	1000μF		0549004	2 B
TR801	XA495BL (B, C, D)		0300161,2,3	2 C
TR802			0300161,2,3	2 A
TR803	CDC8000-1 (B, C)		0305691, 2	2 C
TR804			0305691, 2	1, 2 A
TR805			0305691, 2	1, 2 B
TR806			0305691, 2	1 B
TR807	CDC9000-1 (B, C)		0300201, 2	1 C
TR808			0300201, 2	1 A
TR809	2SC1060 (B, C)		0305711, 2	1B, C
TR810			0305711, 2	1A, B
TR811			0305711, 2	1 C
TR812			0305711, 2	1 A
D801	SV-02		0310490	1 C
D802			0310490	1 A



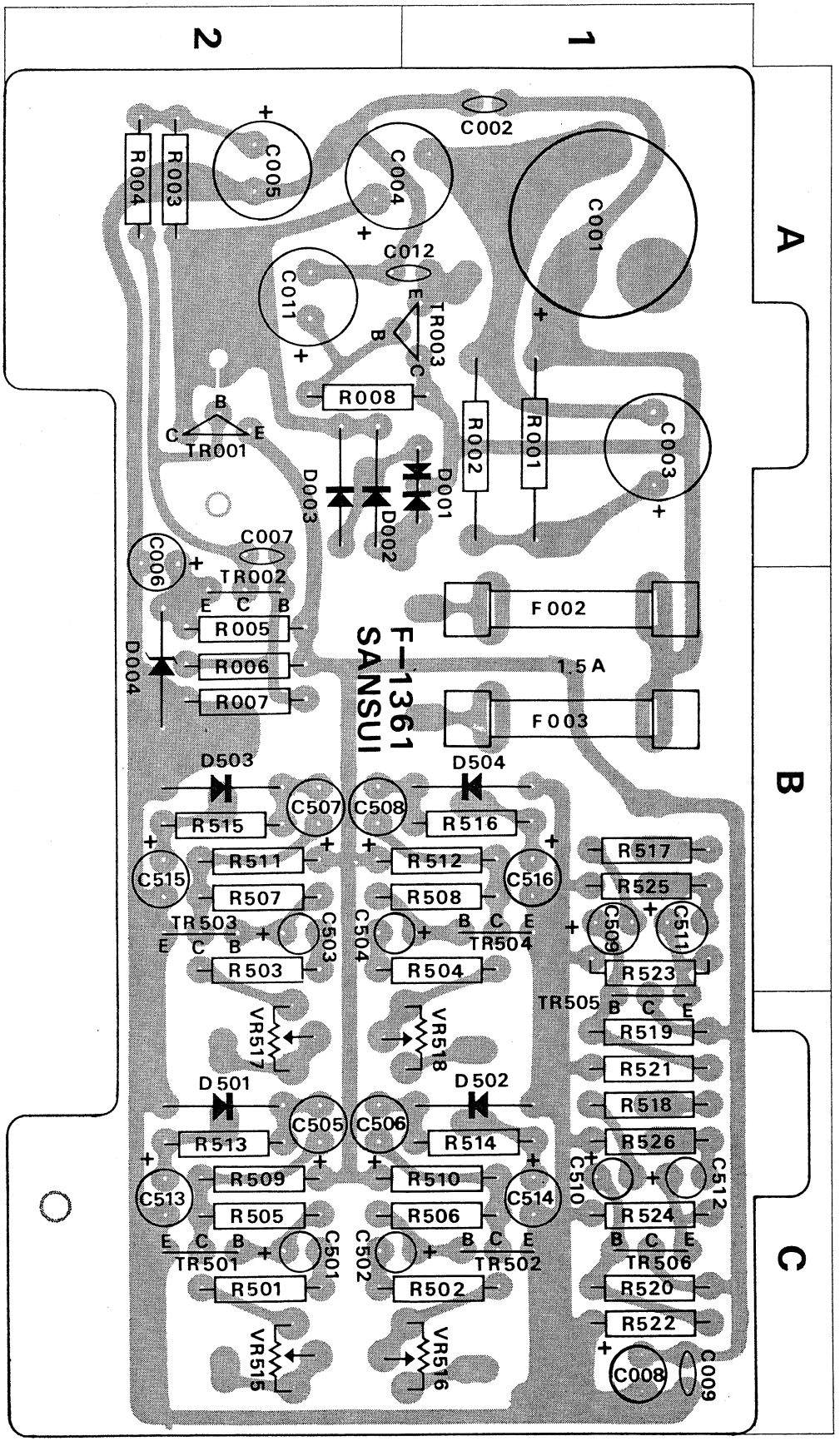
PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. **X:** Parts Name **Y:** Stock No. **Z:** Position of Parts

POWER, METER AMP. 〈F-1361A〉

W	X	Y	Z
R001	820Ω ±10% 1W CR.	0104821	1 A
R002	2.7kΩ ±10% 1W CR.	0104272	1 A
R003	1.5kΩ ±10% ¼W CR.	0101152	2 A
R004	4.7kΩ ±10% ¼W CR.	0101472	2 A
R005	6.8kΩ ±10% ¼W CR.	0101682	2 B
R006	5.6kΩ ±10% ¼W CR.	0101562	2 B
R007	4.7kΩ ±10% ¼W CR.	0101472	2 B
R008	15kΩ ±10% ¼W CR.	0101153	1, 2 A
R501	100kΩ ±10% ¼W CR.	0101104	2 C
R502	100kΩ ±10% ¼W CR.	0101104	1 C
R503	100kΩ ±10% ¼W CR.	0101104	2 B
R504	100kΩ ±10% ¼W CR.	0101104	1 B
R505	1MΩ ±10% ¼W CR.	0101105	2 C
R506	1MΩ ±10% ¼W CR.	0101105	1 C
R507	1MΩ ±10% ¼W CR.	0101105	2 B
R508	1MΩ ±10% ¼W CR.	0101105	1 B
R509	6.8kΩ ±10% ¼W CR.	0101682	2 C
R510	6.8kΩ ±10% ¼W CR.	0101682	1 C
R511	6.8kΩ ±10% ¼W CR.	0101682	2 B
R512	6.8kΩ ±10% ¼W CR.	0101682	1 B
R513	2.2kΩ ±10% ¼W CR.	0101222	2 C
R514	2.2kΩ ±10% ¼W CR.	0101222	1 C
R515	2.2kΩ ±10% ¼W CR.	0101222	2 B
R516	2.2kΩ ±10% ¼W CR.	0101222	1 B
R517	2.2kΩ ±10% ¼W CR.	0101222	1 B
R518	2.2kΩ ±10% ¼W CR.	0101222	1 C
R519	470kΩ ±10% ¼W CR.	0101474	1 C
R520	470kΩ ±10% ¼W CR.	0101474	1 C
R521	220kΩ ±10% ¼W CR.	0101224	1 C
R522	220kΩ ±10% ¼W CR.	0101224	1 C
R523	6.8kΩ ±10% ¼W CR.	0101682	1 B
R524	6.8kΩ ±10% ¼W CR.	0101682	1 C
R525	68kΩ ±10% ¼W CR.	0101683	1 B
R526	68kΩ ±10% ¼W CR.	0101683	1 C
VR515	500kΩ(B) Meter Adj.	1032172	2 C
VR516	500kΩ(B) Meter Adj.	1032172	1 C
VR517	500kΩ(B) Meter Adj.	1032172	2 C
VR518	500kΩ(B) Meter Adj.	1032172	1 C
C001	1000μF 50V EC.	0549103	1 A
C002	0.01μF ±10% 50V CC.	0660103	1 A
C003	470μF 35V EC.	0514471	1 A
C004	220μF 50V EC.	0515221	1, 2 A
C005	100μF 50V EC.	0515101	2 A
C006	1μF 50V EC.	0515109	2A, B
C007	0.001μF ±10% 50V CC.	0660102	2 A
C008	3.3μF 50V EC.	0515339	1 C
C009	0.01μF ±10% 50V CC.	0660103	1 C
C011	100μF 50V EC.	0515101	2 A
C012	0.01μF ±10% 50V CC.	0660103	1, 2 A

W	X	Y	Z
C501	1μF 50V EC.	0515109	2 C
C502	1μF 50V EC.	0515109	2 C
C503	1μF 50V EC.	0515109	2 B
C504	1μF 50V EC.	0515109	2 B
C505	1μF 50V EC.	0515109	2 C
C506	1μF 50V EC.	0515109	2 C
C507	1μF 50V EC.	0515109	2 B
C508	1μF 50V EC.	0515109	2 B
C509	1μF 50V EC.	0515109	1 B
C510	1μF 50V EC.	0515109	1 C
C511	1μF 50V EC.	0515109	1 B
C512	1μF 50V EC.	0515109	1 C
C513	1μF 50V EC.	0515109	2 C
C514	1μF 50V EC.	0515109	1 C
C515	1μF 50V EC.	0515109	2 B
C516	1μF 50V EC.	0515109	1 B
TR001	2SD223 (Y, G)	0308231, 2	2 A
TR002	2SC711 (E, F)	0305731, 2	2 B
TR003	CDC8000-1 (B, C)	0305691, 2	1 A
TR501	2SC711 (E, F)	0305731, 2	2 C
TR502	2SC711 (E, F)	0305731, 2	1 C
TR503	2SC711 (E, F)	0305731, 2	2 B
TR504	2SC711 (E, F)	0305731, 2	1 B
TR505	2SC871 (E, F)	0305471, 1	1 C
TR506	2SC871 (E, F)	0305471, 1	1 C
D001	10DC-1	0310680	1 A
D002	SR1FM-2	0310870	2 A
D003	SR1FM-2	0310870	2 A
D004	RD-13A (L, M)	0315290, 0315300	2 B
D501	1N34A (K)	0310402	2 C
D502	1N34A (K)	0310402	1 C
D503	1N34A (K)	0310402	2 B
D504	1N34A (K)	0310402	1 B
F002	1.5A Quick Acting Fuse	0433220	1 B
F003	1.5A Quick Acting Fuse	0433220	1 B


2
1
A
B
C
F-1361
SANSUI
C002
C005
C004
C001
C012
C011
TR003
R004
R003
R008
R002
R001
C003
TR001
D003
D001
D002
C007
C006
TR002
F002
R005
R006
R007
1.5A
F003
D004
D503
D504
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R524
TR501
C501
C502
TR502
TR506
R501
R502
R520
R522
VR515
VR516
C008
C009

OTHER PARTS AND THEIR POSITIONS ON CHASSIS

W: Parts No. **X:** Parts Name **Y:** Stock No.

OTHER PARTS

W	X	Y
R701	470kΩ ±10% ¼W CR.	0101474
R702	470kΩ	0101474
R703	470kΩ	0101474
R704	470kΩ	0101474
R705	100kΩ	0101104
R706	100kΩ	0101104
R931	82kΩ	0101823
R932	82kΩ	0101823
R933	68kΩ	0101683
R934	68kΩ	0101683
R935	27kΩ	0101273
R936	27kΩ	0101273
R937	10kΩ	0101103
R938	10kΩ	0101103
R939	12kΩ	0101123
VR501~504	250kΩ(MN)×2 Main Balance	1040130
VR505~508	250kΩ(MN)×2 Balance	1060050
VR509~512	250kΩ(A)×4 Volume	1060060
VR513, 514	250kΩ(B)×2 Rear Level	1015040
VR907, 908	250kΩ(B)×2 Level Set	1010710
C010	0.01μF $^{+80}_{-20}$% 1.4kV CC.	0659801
T001	Power Transformer	4000980
S1 (a, b)	Tape Monitor Switch	1170170
S2 (a~f)	Y-3-6-5 Function Switch	1103380
S3 (a~e)	Y-1-4-4 Power/Rear Speakers Switch	1101290
L001	DIN Jack	2430040
PU001	Voltage Selector Socket	2410080
PU002	Voltage Selector Plug	2410090
CO001	AC Outlet	2450040
M501	Level Meter	4300450
M502		4300450
M503		4300450
M504		4300450
F001	2A Power Fuse (For 100~117V)	0431242
	1.5A Power Fuse (For 222~240V)	0431232

Abbreviations

CR : Carbon Resistor
SR : Solid Resistor
CeR : Cement Resistor
MC : Mylar Capacitor
CC : Ceramic Capacitor
EC : Electrolytic Capacitor

* Manufacturer reserves right to change design and/or specifications without for purpose of improvement.